

## **MICROCTONUS PACHYLOBII (HYMENOPTERA: BRACONIDAE) PARASITIZES HYLOBIUS WEEVILS IN WISCONSIN: NEW HOST GENUS AND GEOGRAPHIC RECORDS<sup>1</sup>**

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**ABSTRACT:** *Microctonus pachylobii* adults emerged in the laboratory from field-collected pine root tip weevils, *Hylobius rhizophagus* and pales weevils, *Hylobius pales*. This is the first report of *M. pachylobii* parasitizing a species of *Hylobius*, and the first known hymenopteran parasite of *H. rhizophagus*. *Microctonus pachylobii* is also reported from Wisconsin for the first time.

The genus *Microctonus* (Hymenoptera: Braconidae) is widespread, and some species have been used successfully against adult Coleoptera in biological control programs (Loan 1967, Clausen 1978). One of these species, *M. pachylobii* Muesebeck, has been recorded exclusively from the pitch-eating weevil, *Pachylobius picivorus* (Germar), in the southeastern United States (Muesebeck 1961, Krombein *et al.* 1979). Although related parasites greatly reduce host fecundity (Clausen 1978), the effects of *M. pachylobii* development on host weevils are unknown.

Recently we discovered *M. pachylobii* parasitizing two additional hosts, the pine root tip weevil, *Hylobius rhizophagus* Millers, Benjamin, and Warner, and the pales weevil, *Hylobius pales* (Herbst). Adults were collected in central and northwestern Wisconsin during September and October, 1988. The weevils were collected from screen traps (Raffa & Hall 1988) in pine plantations. They appeared healthy during routine feeding and host-finding bioassays.

Twenty-eight *M. pachylobii* (15 females, 13 males) emerged from adult males and females of *H. rhizophagus* between November 9 and December 8. In addition, four *M. pachylobii* (3 females, 1 male) emerged from adult *H. pales*. The wasps are endoparasitic. We observed up to 5 final instar wasp larvae emerging from a single host, and then burrowing into the substrate to pupate. Adult wasps emerged approximately six days later, and lived for several days. Larval wasp emergence had no externally visible effects on the weevils, except a slight tearing of host tissue at the abdominal apex. Internal reproductive structures were greatly reduced. Parasitized adult weevils lived for two days after wasp emergence. The cause of death could not be directly attributed to parasitism by *M. pachylobii*.

The distribution of *H. rhizophagus* is limited to the Great Lakes region, where it is part of a weevil complex causing extensive damage to

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plantation pines (Kearby & Benjamin 1969). Larval feeding destroys the roots and may serve as an infection court for secondary pathogens (Kearby & Benjamin 1969). *Hylobius pales* is widely distributed throughout eastern North America (Clark, 1975). While a few natural enemies have been associated with *Hylobius radialis* Buchanan and *Hylobius pales* (Shenefelt & Millers 1960, Finnegan 1962, Clark 1975), there are no previous records of hymenopterans parasitizing *H. rhizophagus*.

This is the first record of *M. pachylobii* on a host other than *P. picivorus*, and the first record of this parasite in the northern United States. Additional biological studies will help determine if this parasite can aid in biological control of damaging *Hylobius* species.

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